



EUROBASALT

A photograph of a large, dark, textured cast basalt structural element, possibly a tunnel lining or a large pipe section, with a bright light source visible at the top center, creating a strong lens flare effect. The element is surrounded by a network of white lines, possibly rebar or reinforcement.

**CAST
BASALT
STRUCTURAL
ELEMENTS**

CAST BASALT - excellent material for Water Management Purposes

With respect to Cast Basalt's hard wearing properties and easy of handling during installation, it is ideally suited for repair and maintenance of underground sewage system.

Technical Data

• Mohs hardness (ČSN HN 101)		min 8
• Volume mass (ČSN ISO 5014)	kg.m ⁻³	2900-3000
• Compressive strength (DIN 51087)	min MPa	450
• Wear resistance (ČSN EN 102)	max loss mm ³	110
• Water Absorption (DIN 51058)	% by weight	0
• Ratio of linear thermal expansivity	0-100°C	8.10 ⁻⁶ .K ⁻¹
• Range of application		pH 3 - pH 13

Additional Cast Basalt's features

- Physical properties retained acrossed the entire cross-section
- Natural corrosion resistance
- Smooth, low friction surface in comparison with concrete, K = 0,04 mm
- Unconditional chemical resistance against sewage sludge and waste water
- Zero absorption capacity prevents seepage and pollution of ground water
- High adhesion power to the concrete, „bolt on“ fixing also possible
- High accuracy of castings ensures minimum joints and efficient installation
- Impervious to rodent attack

The excellent set of physical properties and further advantages of Cast Basalt products guarantee that they can be used for:

- Circular-shaped, egg-shaped, mouth-shaped sewers
- Construction and repair of shafts
- Considerable drops, retarders and inclines
- Minimum drops- low hydraulic roughness
- Construction and repair of waste water purification plants
- Safe walkways when wet

Approved Standards and Certificates

- Technical standard ČSN (Czech standard) 756101-4.8
- Catalogue Sheet E-01 Cast basalt
- Certificate No.: 03-6726 Shaped pieces for sewerage
- Building technical certificate No.:03-5946 Cast Basalt Shaped pieces for sub-surface water sewers
- Statement of conformity - according to §11 and § 13 of law 27/1997
- Special acceptance conditions with customers (unless laid down by the Catalogue Sheet)

The properties are regularly checked by the Institute for Technology and Testing in Construction in Plzeň and company laboratories.

Cast basalt shaped pieces have been used in Water Management Systems since the 1950's in Czechoslovakia. Still in use, these have given trouble free operation up to the present day. In Germany, Cast basalt shaped pieces have been used in the same way. In the 1990's, there has again been a boom in the use of Cast Basalt for the construction and maintenance of water management structures in the Czech Republic.

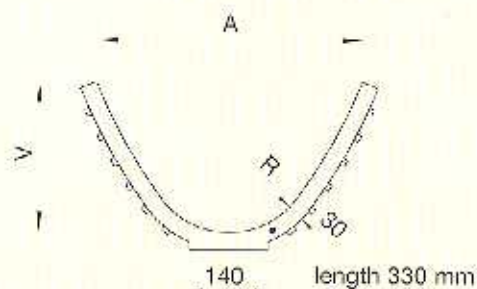
References:

Prague - during the years of 1996 -1998 Cast Basalt shaped pieces were used for reconstruction of Prague's sub-surface sewage conduit having a total length of 6.3 km.

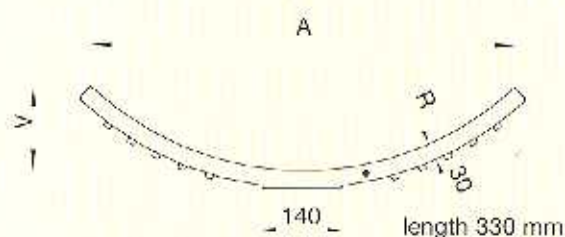
Brno - egg-shaped section concrete liners of pattern reference 50/75 and 60/90 having Cast Basalt lining were mainly used for sub-surface sewage conduit construction and repair. Also new technology of pneumatic concrete-casings for egg-profile ducts in cement prepared on site, with Cast Basalt bottom troughs, are used. Basalt shaped pieces and slabs were used to extend the service life of overflow and steadying chambers. Basalt shaped pieces are being supplied for repair work at various locations in the Czech Republic.

Statement by a specialist, ing. Jiřího Šejnoha of Prague Sewerage and Waterways

„The introduction of regular production of Basalt elements and the advent of new technology have brought about considerable changes in the technical aspects involved in the construction of new and reconstruction of old masonry sewers. The use of basalt bottom troughs eliminates the main causes of disruptions and breakdowns on masonry sewers. The need to repair the bottom parts of sewers owing to the effect of the abrasive and erosive action of waste water on the structure of the sewers is practically eliminated.“



PN I 1P
to
PN XI 1P

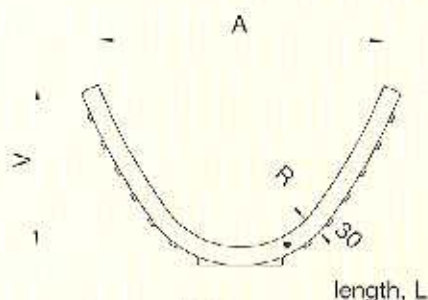


Basalt bottom troughs for standard Prague egg-shaped sewers Standard ČSN 75 6101

Type	A	V	R	Weight
PN I 1P	471,0	265,4	150	24,5 kg
PN II 1P	521,4	276,3	175	26,0 kg
PN III 1P	521,3	238,8	200	24,5 kg
PN IV 1P	562,2	246,2	225	25,5 kg
PN V 1P	601,1	252,7	250	26,5 kg
PN VI 1P	590,4	198,6	300	24,0 kg
PN VII 1P	704,1	244,5	350	28,5 kg
PN VIII 1P	650,2	166,8	400	24,0 kg
PN IX 1P				
PN X 1P				
PN XI 1P	751,7	148,5	550	26,0 kg

The manufacturer also supplies trough segments
for sewers in directional curves.

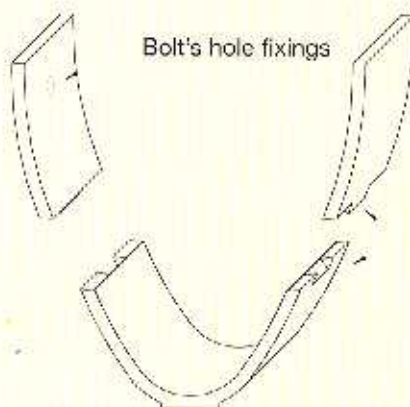
Basalt bottom troughs for egg shaped sewers with b:h form = 2:3 Standard ČSN 75 6101



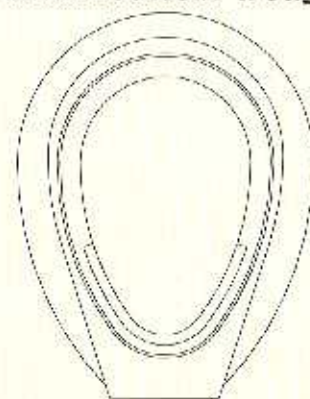
b/h	Type	A	V	R	L	Weight
500/750	CN 0 1P	424,5	265,0	125	412,5	29,5 kg
500/750	CN 0 1P/1	486,6	400,0	125	354,5	36,0 kg
600/900	CN I 1P	470,7	265,0	150	412,5	30,5 kg
700/1050	CN II 1P	579,9	350,0	175	352,0	32,5 kg
800/1200	CN III 1P	662,7	400,0	200	308,0	32,0 kg
900/1350	CN IV 1P					
1000/1500	CN V 1P					
1100/1650	CN VI 1P					
1200/1800	CN VII 1P					
1300/1950	CN VIII 1P					
1400/2100	CN IX 1P					
1500/2250	CN X 1P					
1600/2400	CN XI 1P					
1700/2250	CN XII 1P					
1800/2700	CN XIII 1P					

SPECIAL PROFILES
AVAILABLE ON REQUEST.

Concrete Egg-shaped sewer pipe with Basalt bottom trough



Interlock



Profile can be enlarged by application of side plates, fixed with interlock and bolt.

Radial tiles

R	α	Weight
150	60°	3,90 kg
150	90°	5,80 kg
150	120°	7,80 kg
200	60°	5,00 kg
200	90°	7,50 kg
200	120°	10,00 kg
250	60°	6,50 kg
300	30°	3,75 kg
300	45°	6,00 kg
300	60°	7,50 kg
350	30°	4,25 kg
350	60°	8,50 kg

R	α	Weight
400	30°	4,70 kg
400	45°	7,20 kg
400	60°	9,40 kg
447	30°	5,50 kg
447	45°	8,00 kg
500	30°	6,10 kg
500	45°	8,90 kg
550	30°	6,60 kg
600	30°	7,25 kg
648	30°	7,70 kg
705	20°	5,60 kg
1020	18°	7,30 kg

used for circular-shaped concrete cylinders lining or bottom side sewers collectors, worm pumps.

Troughs split from liner cylinders

Type	s	Weight		
		$\alpha = 90^\circ$	$\alpha = 120^\circ$	$\alpha = 180^\circ$
Z 150/ α	20	4,0	5,5	8,0
Z 175/ α	20	4,5	6,0	9,0
Z 204/ α	20	5,5	7,0	10,5
Z 225/ α	20	6,0	7,5	11,5
Z 254/ α	20	6,5	8,5	12,5
Z 303/ α	20	7,5	10,0	15,5
Z 356/ α	20	9,0	12,0	18,0
Z 400/ α	20	10,5	14,0	20,5
Z 432/ α	20	10,5	14,0	21,0
Z 456/ α	20	11,0	15,5	23,0
Z 500/ α	23	14,0	18,0	28,0
Z 600/ α	23	16,5	22,5	33,5

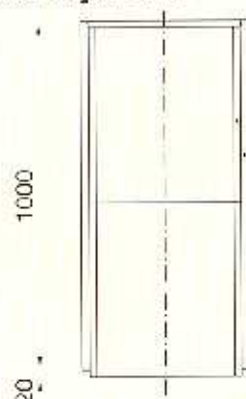
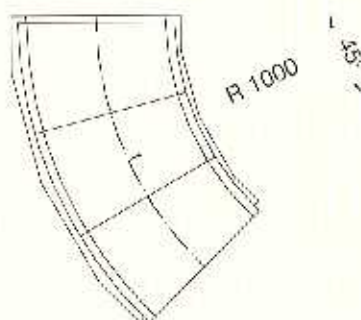
Alternative diameter liners are available for splitting.

Unevenness 15 mm over linear axis

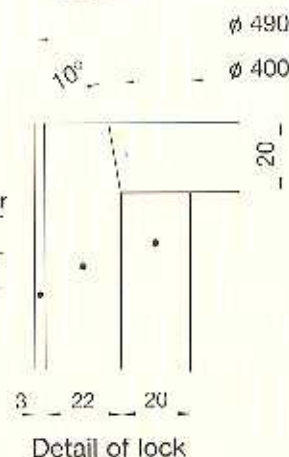
Usage

- Bottom parts for mouth-shaped sewers
- Lined pits of shafts
- Overground sewerage
- Considerable drops and lowland sewers
- Hydraulic roughness $K=0,04$

Bend segments and liners for aprons



Cast basalt liner
Mortar (filler)
Steel shell



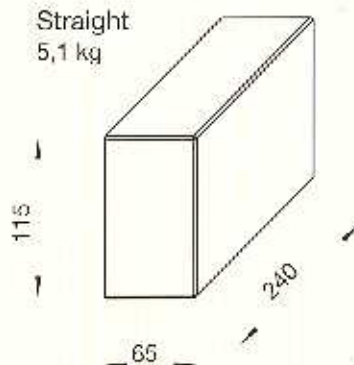
Detail of lock

Special diameters, radius, straights available on request.

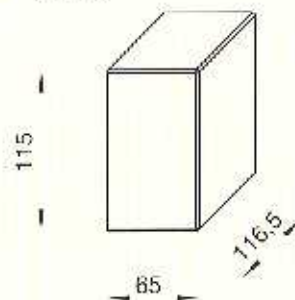
Chemically resistant sewerage bricks and keys



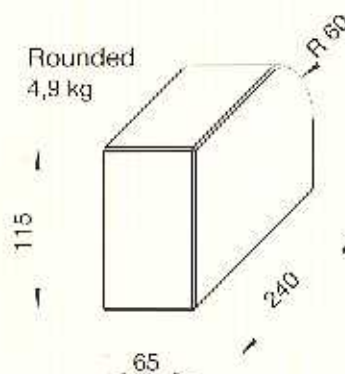
Straight
5,1 kg



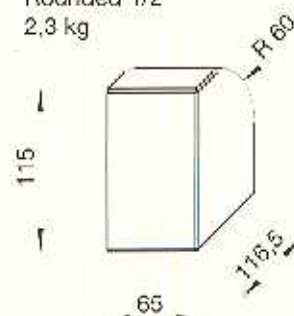
Straight 1/2
2,5 kg



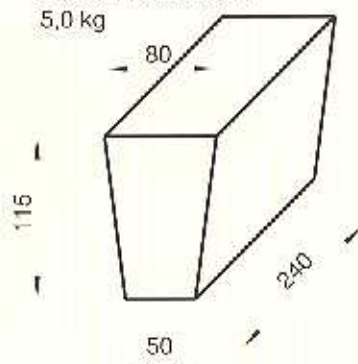
Rounded
4,9 kg



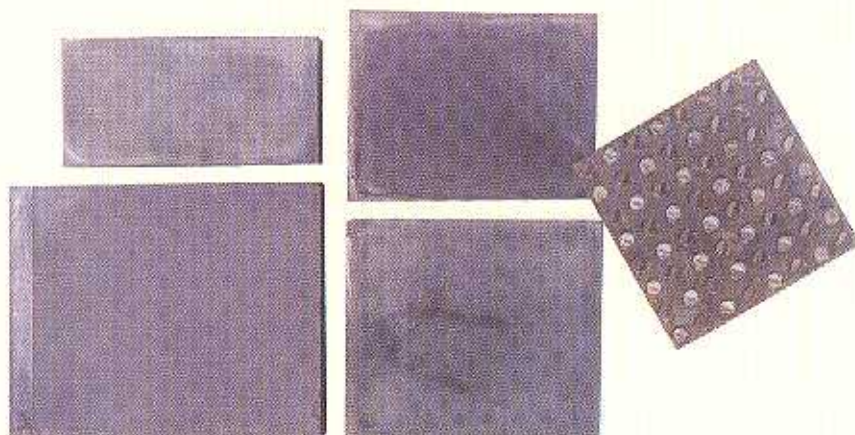
Rounded 1/2
2,3 kg



Sewer key
D 240/115/80/50JR
5,0 kg

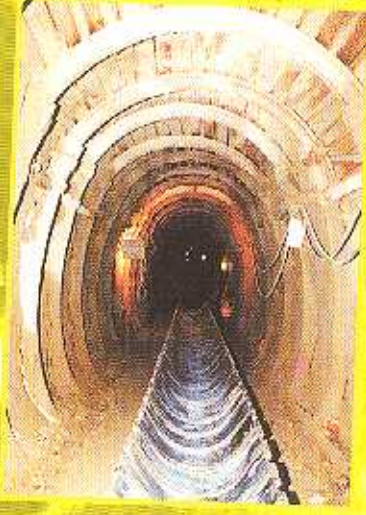
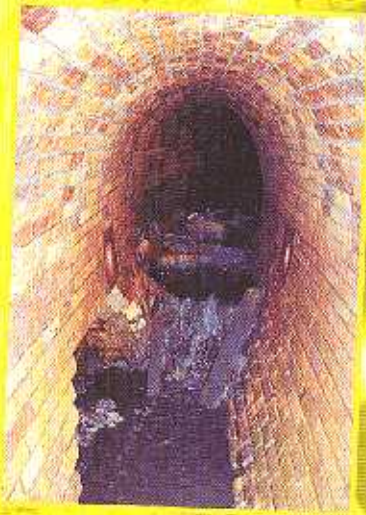


Flat shaped pieces



Flat shaped pieces (slabs) are lining elements for the internal profiles of sewers with flat surfaces, which link to troughs, radial fittings or shaped parts. They are produced in about 60 different sizes and thickness - max. 300 x 300 mm

Cast basalt - a material for the next millennium



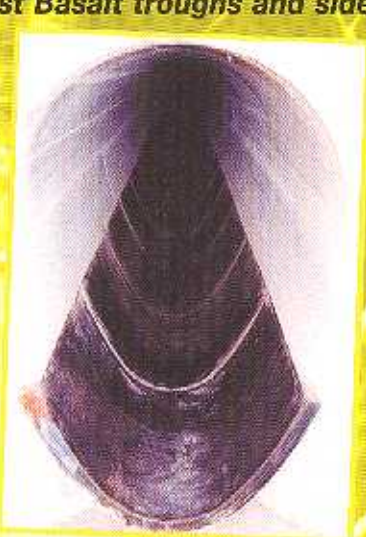
**Reconstruction of underground sewage conduit in Prague.
Cast Basalt troughs and side plates are applicated.**



**Basalt troughs
packed on pallets**



**Troughs split from liner
cylinders**



**50/75 sewer Monolith
on inflatable formwork,
Brno**



**80/120 sewer Monolith
on inflatable formwork, Brno**

EUTIT

EUROBASALT

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